1. Name of student: Armana Akhsambiyeva

2. Name of collaborators: Working alone

3. Data set used: Penguins data set

4. Columns used: flipper_length_mm, bill_length_mm, bill_depth_mm

5. Calculations: average (mean) bill length calculation, standard deviation of bill length, variance of bill length

Decomposition Diagram (next page):

main ():
Orders & calls functions
sequentially
No input, No output

load csv (penguins)
reads penguins csv & turns it
into python structure; list of
dicts including only bill_length,
flipper_length, bill_depth, &
penguin itself. Input: csv file
(string)
Output: penguin
list of dicts.

Calculate Mean:
function finds arithmetic
mean of input.
Input: numerical values →
list of floats
output: mean as a float

calculate variance:
uses arithmetic mean
from calculate mean function
to calculate variance.
Input: list of numerical values
& mean (float)
output: variance (float)

Calculate standard deviation:
uses variance float, takes
square root
Input: variance (float)
output: standard deviation
as a float

calculate bill_length
takes bill_length from each
penguin dict, takes mean,
variance, and standard deviation
input: list of dicts (penguin)
output: dict w/ mean, variance,
and standard deviation

bill_depth
takes bill_depth values
from penguin dicts, calls
mean, variance, standard
deviation functions.
input: list of dicts
output: dict w/ mean, variance,
standard deviation

flipper_length
takes flipper_length values from
penguin dicts, calls on mean, variance
standard dev functions
input: list of penguin dicts
output: dict w/ mean, variance
standard deviation

variable report
takes dicts from bill_length,
bill_depth, flipper_length w/ the
results, writes into .txt
file w/ text explaining mean,
variance, standard deviation of
variables (columns).
Input: dicts from column functions
[blue bubble output] x 3
output: None